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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,247	02/28/2002	Kazuo Ojima	381NT/50973	2022

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EXAMINER

TRIEU, THAI BA

ART UNIT PAPER NUMBER

3748

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,247

Applicant(s)

OJIMA ET AL.

Examiner

Thai-Ba Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

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DETAILED ACTION

The substitute specification and the preliminary Amendment filed on January 08, 2003 are acknowledged. Claims 1-10 were cancelled and claims 11-21 were added.

Specification

The disclosure is objected to because of the following informalities:

- On Page 8, Paragraph [0044], line 2, "**10**" after "**rotary shaft**" should be replaced by **--3 --**.

Appropriate correction is required.

Claim Objections

Claim 12 is objected to because of the following informalities:

- Line 2, "**comprising**" after "**the improvement**" should be replaced by **-- comprises --**.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Miyake (Nippon Mining Co. Publication Number JP 62274036 A).

Miyake discloses a radial bearing (6) made of a copper alloy mainly comprising Cu, Zn, Al, Mn, and Si (See Table 1, and Abstract).

Claims 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by either Komori (Mitsubishi Metal Corp. Publication Number JP 57076143 A), or Baba (Patent Number 5,296,057).

Komori/Baba discloses a radial bearing, comprising a brass alloy in which an Mn-Si - compound is crystallized in a brass base material; wherein said brass alloy has a structure in which an Mn-Si compound crystallized in said brass base material is elongated and is dispersed; and wherein a floating metal comprising said radial bearing (See Abstract of Komori (Mitsubishi Metal Corp.), Abstract, Column 1, lines 14-38, Column 2, lines 8-33, and 45-68, and Column 3, lines 1-17 of Baba).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Patent number JP 60138228 A), in view of Miyake (Nippon Mining Co. Publication Number JP 62274036 A).

Suzuki discloses in a turbocharger for an internal combustion engine, a radial bearing (6) is provided for supporting a rotary shaft (Not Numbered) of the turbocharger and comprises a copper alloy (See Figure1, 2, and 4, and Abstract).

However, Suzuki fails to disclose a copper alloy mainly comprising Cu, Zn, Al, Mn, and Si.

Miyake teaches that it is conventional in the art of wear and corrosion resistant for bearings, to utilize a copper alloy mainly comprising Cu, Zn, Al, Mn, and Si (See table 1, and Abstract).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a copper alloy mainly comprising Cu, Zn, Al, Mn, and Si, as taught by Miyake, to improve the wear resistant for the bearings under high speed and high load, in the Suzuki device.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Patent number JP 60138228 A), in view of either Komori (Mitsubishi Metal Corp. Publication Number JP57076143 A), or Baba (Patent number 5,296,057).

Suzuki discloses in an internal combustion engine, a turbocharger having a rotary shaft (Not Numbered), a radial bearing (6) being provided for supporting said rotary shaft; and said radial bearing being made of a floating metal (See Figure 1, and Abstract).

However, Suzuki fails to disclose bearing comprising a brass alloy in which an Mn-Si compound is crystallized in a brass base material; and Mn-Si compound being

elongated in an axial direction of said rotary shaft and is dispersed; and said radial bearing being made of floating metal.

Komori/Baba teaches that it is conventional in the dispersion-strengthened brass alloy art to utilize a brass alloy in which an Mn-Si compound is crystallized in a brass base material; and said Mn-Si compound being elongated along the rolling direction; (See Abstract of Komori (Mitsubishi Metal Corp.), Abstract, Column 1, lines 14-38, Column 2, lines 8-33, and 45-68, and Column 3, lines 1-17 of Baba).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a brass alloy, as taught by Komori/Baba, to improve the wear resistant for the bearings, in the Suzuki device.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Patent number JP 60138228 A), in view of Miyake (Nippon Mining Co. Publication Number JP 62274036 A), and further in view of design choice.

The modified Suzuki device discloses the invention as recited above; however, fails to disclose the percentage of each chemical element contained in said copper alloy.

One having an ordinary skill in the wear resistant art, would have found said copper alloy containing 54 to 64 wt% of Cu, 0.2 to 3.0 wt% of Si, 0.2 to 7.0 wt% of Mn, 0.5 to 3.5 wt.% of Al, and a remainder substantially of Zn, as a matter of design choice depending on the rotational speed of the turbocharger, since the toughness and the strength of bearings made of such kind of copper alloy would increase the wear

resistance, when the shaft of turbocharger rotates at high speed. Moreover, there is nothing in the record, which establishes that the claimed wear corrosion resistance copper alloy for bearings, presents a novel of unexpected result (See *In re Kuhle*, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Patent number JP 60138228 A), in view of design choice.

Suzuki discloses the invention as recited above; however, Suzuki fails to disclose the percentage of each chemical element contained in said copper alloy.

One having an ordinary skill in the wear resistant art, would have found said copper alloy containing 54 to 64 wt% of Cu, 0.2 to 3.0 wt% of Si, 0.2 to 7.0 wt% of Mn, 0.5 to 3.5 wt.% of Al, and a remainder substantially of Zn, as a matter of design choice depending on the rotational speed of the turbocharger, since the toughness and the strength of bearings made of such kind of copper alloy would increase the wear resistance, when the shaft of turbocharger rotates at high speed. Moreover, there is nothing in the record, which establishes that the claimed wear corrosion resistance copper alloy for bearings, presents a novel of unexpected result (See *In re Kuhle*, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Komori (Mitsubishi Metal Corp. Publication Number JP 57076143 A), or Baba (Patent Number 5,296,057), in view of Suzuki (Patent number JP 60138228 A).

Komori/Baba discloses the invention as recited above; however, Komori/Baba fails to disclose said radial bearing being made of a floating metal.

Suzuki teaches that it is conventional in the turbocharger art to utilize said radial bearing being made of a floating metal (6) (See Figure 1).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a floating metal bearing, as taught by Suzuki, to support the rotation of the turbocharger shaft.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Woollenweber (US Patent Number 3,993,370) discloses a bearing structure.
- Koike et al. (US Patent Number 5,993,173) discloses a turbocharger.
- Sakai et al. (US Patent Number 6,334,914 B2) disclose Copper alloy sliding material.
- Tanaka et al. (US Patent Number 5,445,896) disclose sliding bearing material including overlay having excellent anti-seizure property.
- Tanaka et al. (US Patent Number 5,183,637) disclose wear resistant copper alloy.
- Sato et al. (US Patent Number 6,071,361) disclose copper-based sliding member.
- Hiramatsu et al. (Patent Number 5,700,093) disclose a bearing structure.

- Mori (Daido Metal Kogyo Publication Number JP 56009346 A) discloses abrasion resistant copper alloy for bearings.
- Miyake (Nippon Mining Co. Publication Number JP 62297429 A) discloses corrosion resistant copper alloy for bearings, gears, screws, and valves.
- Sakakura et al. (Patent Number JP 62013549 A) discloses wear resisting copper alloy.
- Shimizu et al. (Patent Number JP 60162742 A) discloses bearings for a supercharger.
- Inoue et al. (Patent Number GB2 240 785 A) disclose composite sliding material for bearings.
- Inaba et al. (Patent Number GB 2 355 016 A) disclose Copper sliding bearing alloy.
- Sakai et al. (Patent Number GB 2 374 086 A) disclose a sliding material-.
- Akutsu et al. (Patent Number EP 0 407 596 A1) disclose copper-based sintered alloy for a transmission, valve guides of an engine and bearings of a turbocharger.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00), every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone

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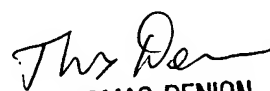
numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9302 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

TTB
March 12, 2003



Thai-Ba Trieu
Patent Examiner
Art Unit 3748



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